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MX Is A Serious Mistake

The changing balance of strategic nuclear forces between the United States and the Soviet Union has in the last few years been a major focus of attention for the American intelligence community. Until the late 1960s, the United States was militarily stronger than the Soviet Union by virtue of its superior nuclear arsenal. We felt secure. The Soviets didn't, and they set out to correct the imbalance.

The result has been that in the last several years all of the best studies have shown that the balance of strategic nuclear capabilities has been tipping in favor of the Soviet Union.

The Carter administration recognized this imbalance and developed an ambitious plan to build a mammoth new intercontinental ballistic missile system known as the MX. Congress has provided initial financing, and already contractors from California to Massachusetts are building test sites and hiring designers and workers. Some 10,000 workers are already involved.

I believe the MX project as presently conceived is a serious mistake.

The official estimates of the total cost of the MX run from the Air Force's $36 billion to the General Accounting Office's $56 billion. Each missile will weigh 95 tons, two and a half times more than our most current ICBM, the Minuteman III, and will carry 10 separate warheads. To construct a base for it will require, according to some estimates, 40 per cent of the country's total cement production for three years, and more dirt will have to be moved and more land sequestered than for the Panama Canal.

MX is also a new concept in ICBMs. Our present Minuteman ICBMs are loaded in fixed, underground silos of concrete, reinforced to help them withstand nuclear attack. MX, in contrast, will be semimobile. Twenty-three shelters, about a mile apart, are to be built for each MX. Each of the 200 missiles will ride on a 201-foot-long transporter-launcher, weighing more than a million pounds, over the special highways from one of its 23 shelters to another. The Russians would be forced into a kind of shell game, if they considered an attack on our ICBMs; each MX would force them to worry about 23 targets rather than just one.

The U.S. strategic strength — strategic strength, in this context, refers to the major powers' centrally controlled nuclear forces, which are targeted against each other — is built on three legs known as the TRIAD. Each leg represents a weapons system that is launched differently: one from land bases, the second from airplanes and the third from submarines. Each leg presents the Soviet Union with a different problem should it decide to attack. While it might be able to cripple one leg, the inability to knock out all three should deter the Soviet Union from attacking at all.

The MX specifically strengthens the land — that is, the ICBM — leg. This leg is important because the size of the warheads and the accuracy of the missiles make it the most powerful part of our strategic arsenal. It is quickly responsive to a decision to launch, because the missiles can be maintained in a constant state of readiness and we have reliable, instantaneous, secure communications to them. It provides minimum warning of attack to the Soviet military, because the time from launch in the United States to detonation over the Soviet Union would be only about 30 minutes.

The other legs of the TRIAD have different virtues. Submarine-launched ballistic missiles (SLBMs) provide greater assurance than either of the other weapons systems that they will survive a surprise attack. Submarines can be constantly moving and they are virtually impossible to find in broad ocean areas. Bombers can carry a large number of weapons, so they provide great destructive potential and, because the bombers themselves can be called back before they actually launch their missiles, this leg of the TRIAD is the most flexible.

Most authorities agree that today the land-launched ICBMs, our Minuteman missiles, are the most vulnerable of our strategic forces because their location is fixed, making them easy targets. But is MX the best replacement? The undertaking is so central to our national security that it is important that doubts about it be resolved.

First, what do we mean when we say that the balance of strategic nuclear forces is tipping against us? How is that balance measured? One quantitative measure is the number of weapons the United States and the Soviet Union each has. Here, America is clearly ahead. We can attack more individual targets than the Russians can.

Another measure is the ability to inflict damage. Here the Soviet Union is well ahead. The Soviets hold both an absolute lead in total number of ICBMs and a relative lead in the ability to destroy missiles that are housed in hardened silos. This advantage reflects, first, the fact that there are 400 to 00 fewer ICBM targets in the United States than in the Soviet Union. Second, it reflects a basic trend in strategic warfare. Improvements in weapon accuracy are more than offsetting any efforts to harden silos. Direct hits can destroy even hardened silos.

We could do two things to right this imbalance. We could increase our ability to attack hardened targets in the Soviet Union and we could make our ICBM forces less vulnerable. But whatever we do, it must not only correct the actual imbalance of capability; it must also correct the *perception* of imbalance. It must be made clear in the minds of Soviet officials as well as other world leaders that the Soviet Union does not have an edge on the United States in strategic nuclear strength.

A major step in doing that is to create the impression that the United States is seriously committed to improving our strategic forces, even if in reality some of the actions we take will contribute only to overkill. Changing the world's perception that we are falling behind the Soviet Union is as important as not falling behind in fact. Deterrence is the key goal of strategic nuclear forces, and what will or will not deter a nuclear attack is sometimes more psychological than quantifiable.

The MX would, indeed, meet these objectives. It is designed to hit hard targets. It is less vulnerable than Minuteman because each missile can shuttle among the 23 alternative launching shelters rather than sit in one fixed silo. And, proceeding with the most expensive public-works program ever contemplated would certainly give an impression that America was serious about restoring the strategic balance.

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A Range of Liabilities

But the MX has significant liabilities. One is the response it can be expected to draw from the Soviet Union. The current plan is to put 200 MX missiles in place and to build 4,600 shelters. If we presume that the Soviet Union will want to be able to knock out essentially all MX missiles with a surprise attack – as it could our present 1,000 Minuteman ICBMs – it would need 4,600 more warheads than are required now for Minuteman. Could the Soviet Union deploy another 4,600 warheads? Yes, easily, even under the limitations of SALT II. The United States would not, of course, stand still if the Soviet Union deployed more warheads. It would probably deploy more MXs and build more shelters. Then the Soviet Union would probably build still more warheads. Where would it all stop?

Stability is a function not only of the number, size and survivability of weapons, but of other characteristics as well. The more threatening a weapon is, the more nervous it makes a potential adversary and the more destabilizing it becomes. A high-accuracy ICBM is a destabilizing weapon because it can be launched on short notice, because it has a short flight time and therefore gives little warning and because it can destroy even hardened targets like ICBM silos. ICBMs like Minuteman and MX are at the most destabilizing end of the weapons spectrum because they combine *all* of these characteristics. Most other systems have some but not all. Thus, building the MX would, instead of stabilizing the strategic balance, probably destabilize it further.

The United States could avoid the risk that the Soviet Union's military response to the MX would both offset its effectiveness and lead to more dangerous instability by simply canceling the project.

A Clear Program

But just deciding not to build the MX would also be a serious mistake. It is essential that the United States make a commitment to some clearly defined program lest the nation permit the strategic imbalance to worsen, or allow the perception that it is indecisive to undermine what it finally decides to do. It should cancel the MX only under two conditions: that it do something else instead; and that whatever it does will meet its strategic objectives.

There are excellent alternatives to the MX. The best would be a diverse mix of systems, all of which would be more mobile than the MX and could be deployed in much larger numbers. Both the mobility and the large quantity of these systems would make them very difficult for the Soviets to attack with confidence.

Intercontinental cruise missiles on a variety of launching platforms would be one ingredient in the mix. A cruise missile is relatively small – some the size of a torpedo; it is self-guiding and flies in the atmosphere, whereas the much larger ICBM is shot out into space before it returns to its target. Modern technology will permit the United States to place cruise missiles in small packages and to give them even greater accuracy and penetration capability than ICBMs.

Other ingredients of the mix would be land-mobile ICBMs and the existing SLBMs on submarines. The United States ought to develop a small, road-mobile ICBM, just as the Soviet Union has already done (the SS-16). Ours could be deployed in the remote areas of Alaska, for example. It could even be disguised in large trucking vans and moved around the United States at random. This same ICBM could be placed on ships and carried in aircraft as well.

This mix of more mobile systems also lessens vulnerability better than the MX. The less mobile the system, the more vulnerable. The fixed ICBM is the most vulnerable strategic system. It cannot move and it is difficult to hide from modern reconnaissance systems. Next to the fixed ICBM, the semi-fixed MX is the most vulnerable. It can move, but only between fixed shelters whose positions are well-known to the Soviet Union.

The MX may also fail to achieve the third objective – that is, correcting public perception, demonstrating a new momentum toward righting the strategic balance. Environmental and political activists may well delay the MX deployment, limit its size, or even prevent its development entirely. If we proclaim that the MX is to be our solution to the strategic balance and then cannot follow through with an adequate deployment, we will have demonstrated that we are incapable of doing so. How much greater would the corrective measures have to be then, to overcome that intensified negative perception?

Preserve the Triad

The final issue is whether a mix of more mobile strategic forces would meet national objectives better than the MX. I believe it would.

One of the arguments for continued reliance on ICBMs is that we need to preserve the concept of a triad of strategic forces (ICBMs, bombers and submarines). I agree that we cannot rely entirely on one type of weapon lest some counter to it be developed. I agree, too, that we do not want to depend excessively on one form of basing lest it become especially vulnerable. But diversity in these areas should come from a careful mix of the least vulnerable systems that we can devise, not by retaining the existing mix no matter what common sense tells us. The proposed set of mobile systems would be a far healthier and more diversified mix.

There is little time left to reverse the momentum of the MX. A prompt but thorough review of where the MX may be taking us, as well as what alternatives there are, is crucial to America's long-term security.

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WHY WE SHOULDN'T BUILD THE MX

NEW YORK TIMES

By Stansfield Turner

The changing balance of strategic nuclear forces between the United States and the Soviet Union has in the last few years been a major focus of attention for the American intelligence community. Until the late 1960's, the United States was militarily stronger than the Soviet Union by virtue of its superior nuclear arsenal. We felt secure. The Soviets didn't, and they set out to correct the imbalance. The result has been that in the last several years all of the best studies have shown that the balance of strategic nuclear capabilities has been tipping in favor of the Soviet Union. It is not easy for the layman to gather enough information to make a judgment, but a careful study of the evidence shows that we do deserve to be worried. Even if the perception that there has been a change in the balance were, to some extent, overstated, that perception itself could damage the position, authority and role of the United States in world affairs. The perception as well as the fact must be redressed so that the Soviet Union sees no advantage in using its nuclear arsenal against us.

The Carter Administration recognized this imbalance and developed an ambitious plan to build a mammoth new intercontinental ballistic missile system known as the MX (for "missile experimental"). Congress has provided initial financing, and already major contractors from California to Massachusetts are plunging ahead — building test sites and hiring designers and workers. Some 10,000 workers are already involved.

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The official estimates of the total cost of the MX run from the Air Force's $34 billion to the General Accounting Office's $56 billion. Each missile will weigh 95 tons, two and a half times more than our most current intercontinental ballistic missile (ICBM) — the Minuteman III — and will carry 10 separate warheads. To construct a base for it will require, according to some estimates, 40 percent of the country's total cement production for three years, and more dirt will have to be moved and more land sequestered than for the Panama Canal. It will require the building of perhaps 10,000 miles of roads (the entire Federal Interstate System of highways is only 42,500 miles long).

MX is also a new concept in ICBM's. Our present Minuteman ICBM's are loaded in fixed, underground silos of concrete, reinforced to help them withstand nuclear attack. MX, in contrast, will be semimobile. Twenty-three shelters, about a mile apart, are to be built for each MX. Each of the 200 missiles will ride on a 201-foot-long transporter-launcher, weighing more than a million pounds, over the special highways from one of its 23 shelters to another. The Russians would be forced into a kind of shell game if they considered an attack on our ICBM's; each MX would force them to worry about 23 targets rather than just one.

The United States strategic strength — strategic strength, in this context, refers to the major powers' centrally controlled nuclear forces, which are targeted against each other — is built on three legs known as the TRIAD. Each leg represents a weapons system that is launched differently: one from land bases, the second from airplanes and the third from submarines. Each leg presents the Soviet Union with a different problem should it decide to attack. While it might be able to cripple one leg, the inability to knock out all three should deter the Soviet Union from attacking at all.

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Most authorities agree that today the land-launched ICBM's, our Minuteman missiles, are the most vulnerable of our strategic forces because their location is fixed, making them easy targets. But

is the MX the best replacement? To answer, one must closely examine not only the magnitude and cost of the whole project but also whether the MX will be suitable in 1989 or 1990, when it is expected to be operational. President Reagan expressed some skepticism during the election campaign. And Secretary of Defense Caspar W. Weinberger, since assuming office, has indicated that he wants to look at the alternatives, though he recently appointed a 15-member panel — whose chairman is the Nobel Prize-winning physicist Dr. Charles Townes of the University of California at Berkeley — to study how and where the MX system will be based.

The undertaking is so central to our national security that it is important that doubts about it be resolved.

First, what do we mean when we say that the balance of strategic nuclear forces is tipping against us? How is that

Stansfield Turner, a retired admiral and former director of the Central Intelligence Agency in the Carter Administration, is lecturing, consulting and writing a book on military strategy.

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balance measured? One quantitative measure is the number of weapons the United States and the Soviet Union each has. Here, America is clearly ahead: We can attack more individual targets than the Russians can. Another measure is the ability to inflict damage. Here the Soviet Union is well ahead. With fewer but more powerful weapons, they outdistance the United States in both of the two usual measures of destructiveness: ability to destroy cities and ability to destroy missile silos.

Two facts should be noted, however. First, both the United States and the Soviet Union possess overkill. Without building another single weapon, both countries can destroy each other's cities several times over. Second, because the total urban area of America is more than twice the size of that in the Soviet Union, the Soviet Union needs twice the capacity to destroy cities that we need to cause the same relative damage. Considering these two factors, there is no need for us to generate more city-destroying potential just to match the Soviet Union.

On the other hand, the Soviets hold both an absolute lead in total number of ICBM's and a relative lead in the ability to destroy missiles that are housed in hardened silos. This advantage reflects, first, the fact that there are 400 to 500 fewer ICBM targets in the United States than in the Soviet Union. Second, it reflects a basic trend in strategic warfare. Improvements in weapon accuracy are more than offsetting any efforts to harden silos. This is particularly the case for the Soviet Union, whose weapons have always had a very large destructive power and now are becoming more accurate. Direct hits can destroy even hardened silos. Accordingly, the United States' land-based ICBM force in silos is very vulnerable, and that is the driving factor in our perception that the strategic balance is tipping against us.

We could do two things to right this imbalance. We could increase our ability to attack hardened targets in the Soviet Union and we could make our ICBM forces less vulnerable. But whatever we do, it must not only correct the actual imbalance of capability; it must also correct the perception of imbalance. It must be made clear in the minds of Soviet officials as well as other world leaders that the Soviet Union does not have an edge on the United States in strategic nuclear strength. A major step in doing that is to create the impression that the United States is seriously committed to improving our strategic forces, even if in reality some of the actions we take will contribute only to overkill. Changing the world's perception that we are falling behind the Soviet Union is as important as not falling behind in fact. Deterrence is the key goal of strategic nuclear forces, and what will or will not deter a nuclear attack is sometimes more psychological than quantifiable.

In summary, we should aim toward three objectives: (1) increasing our ability to destroy hardened targets; (2) lessening the vulnerability of our ICBM's to surprise attack, and (3) changing the perception of the balance in our favor.

The MX would, indeed, meet these objectives. It is designed to hit hard targets. It is less vulnerable than Minuteman because each missile can shuttle among the 23 alternative launching shelters rather than sit in one fixed silo. And, proceeding with the most expensive public-works program ever contemplated would certainly give an impression that America was serious about restoring the strategic balance.

But the MX has significant liabilities. One is the response it can be expected to draw from the Soviet Union. The current plan is to put 200 MX missiles in place and to build 4,600 shelters. If we presume that the Soviet Union will want to be able to knock out essentially all MX missiles with a surprise attack — as it could our present 1,000 Minuteman ICBM's — it would need 4,600 more warheads than are required now for Minuteman. Could the Soviet Union deploy another 4,600 warheads? Yes, easily, even under the limitations of the proposed strategic arms limitations treaty (SALT II). The United States would not, of course, stand still if the Soviet Union deployed more warheads. It would probably deploy more MX's and build more shelters. Then the Soviet Union would probably build still more warheads. Where would it all stop? The added warheads would pose no problem for the Soviet Union. Its very large SS-18 ICBM, for instance, carries 10 warheads. This missile is so designed that it could accommodate more than twice as many. Although each warhead would be smaller, it would still have more than enough explosive power to destroy an MX shelter. It would also cost less for Moscow to proliferate warheads on existing missiles than for us to keep deploying more and more MX's. The only constraining factor is the SALT II treaty, which sets a maximum of 10 warheads per ICBM. If the Russians believed they needed to add more than 4,600 warheads for insurance — and it is not unreasonable for them to suppose that some would miss the targets — either they would abandon the SALT II constraint or they would demand a high price for its continuation, perhaps restrictions on the size and shape of our MX deployment.

The United States could defend the MX with an antiballistic missile system (ABM). But this would sacrifice the 1972 ABM Treaty, one of the most successful efforts to control the nuclear arms race. It would also cost us more to build ABM's than it would cost the Soviet Union, in turn, to attack them. In short, it would be very difficult to use the MX to offset the existing Soviet advantage in hard-target kill capability, and probably our ICBM's would remain as vulnerable after MX as before. Hence, strategic instability would remain.

Stability is a function not only of the number, size and survivability of weapons, but of other characteristics as well. The more threatening a weapon is, the more nervous it makes a poten-

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tial adversary and the more destabilizing it becomes. A high-accuracy ICBM is a destabilizing weapon because it can be launched on short notice, because it has a short flight time and therefore gives little warning and because it can destroy even hardened targets like ICBM silos. ICBM's like Minuteman and MX are at the most destabilizing end of the weapons spectrum because they combine all of these characteristics. Most other systems have some but not all. Thus building the MX, rather than stabilizing the strategic balance, would probably destabilize it further.

Weapons at the other end of the spectrum, such as shorter-range missiles carried by bombers — missiles which cannot be launched until their planes (relatively slow-moving and detectable by enemy radar) get close enough to their targets — give the enemy more time to reflect and react. Submarine-launched intercontinental missiles are also less threatening; though they have even shorter times of flight than land-based ICBM'S, they do not possess the accuracy for direct hits needed to destroy hardened-concrete ICBM silos. Thus, neither bomber nor submarine missiles require hair-trigger response, and therefore they tend to stabilize the strategic balance. It is the ICBM's more than any other strategic-weapons system that make the other side feel that it must be prepared to launch its own ICBM's as soon as it realizes that an attack is coming. The greater the doubts a country has about the survivability of its ICBM's, the more it is driven to be ready to launch its weapons on the first indication that an attack is on the way. This feeling that hair-trigger responsiveness is necessary contributes dangerously to instability, therefore is perhaps the single most important quality to eliminate from the design of a weapons system.

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The United States could avoid the risk that the Soviet Union's military response to the MX would both offset its effectiveness and lead to more dangerous instability by simply canceling the project. But just deciding not to build the MX would also be a serious mistake. It is essential that the United States make a commitment to some clearly defined program lest the nation permit the strategic imbalance to worsen, or allow the perception that it is indecisive undermine what it finally decides to do. It should cancel the MX only under two conditions: that it does something else instead; and that whatever it does will meet its strategic objectives.

There are excellent alternatives to the MX. The best would be a diverse mix of systems, all of which would be more mobile than the MX and could be deployed in much larger numbers. Both the mobility and the large quantity of these systems would make them very difficult for the Soviets to attack with confidence.

Intercontinental cruise missiles on a variety of launching platforms would be one ingredient in the mix. A cruise missile is relatively small — some the size of a torpedo; it is self-guiding and flies in the atmosphere, whereas the much larger ICBM is shot out into space before it returns to its target. Modern technology will permit the United States to place cruise missiles in small packages and to give them even greater accuracy and penetrability than ICBM's. Other ingredients of the mix would be land-mobile ICBM's and the existing SLBM's on submarines. The United States ought to develop a small, road-mobile ICBM, just as the Soviet Union has already done (the SS-16). Ours could be deployed in the remote areas of Alaska, for example. It could even be disguised in large trucking vans and moved around the United States at random. This same ICBM could be placed on ships and carried in aircraft as well. The one essential is that we use the technology we now have to build our new ICBM small and light enough to be carried in these alternative vehicles. The MX is too large and heavy for any of them. At the very least, the MX should be scaled down so that we could deploy it in more ways than just in fixed shelters. It is, literally, a case of smaller is not only cheaper but also better.

This mix of more mobile systems also lessens vulnerability better than the MX. The less mobile the system, the more vulnerable. The fixed ICBM is the most vulnerable strategic system. It cannot move and it is difficult to hide from modern reconnaissance systems. Next to the fixed ICBM, the semifixed MX is the most vulnerable. It can move, but only between fixed shelters whose positions are well known to the Soviet Union.

Certainly, each of the more mobile systems I have mentioned may become more vulnerable over time, but there is no reason to believe that any will become more vulnerable than the MX. Submarines may become more easily detectable, but they still can move rapidly and continuously, and their location cannot be predicted in advance. Cruise missiles may become more vulnerable to improved air defenses, but they can hide with STEALTH techniques — the means of making them less visible to radar — and can attack in numbers that would saturate defenses. On the other hand, the probability is very low that the MX can withstand the progress of technology, as ways to thwart ICBM's are devised, during the next several decades, either by destroying them before they are launched, intercepting them en route or diverting them. If we buy MX to lessen vulnerability, we are in reality taking the smallest of steps toward reduced vulnerability. We are doing so with a system so large, so cumbersome and so expensive that should technology make

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it obsolete before it is completed — a very likely possibility — we will still be committed to it for decades.

The MX may also fail to achieve the third objective — that is, correcting public perception, demonstrating a new momentum toward righting the strategic balance. In our democratic society, environmental and political activists may well delay the MX deployment, limit its size, or even prevent its development entirely. If we proclaim publicly that the MX is to be our solution to the changing strategic balance and then cannot follow through with an adequate deployment, we will have demonstrated that we are incapable of doing so. How much greater will the corrective measures have to be then to overcome that negative perception?

The final issue is whether a mix of more mobile strategic forces would meet national objectives better than the MX. I believe it would.

One of the arguments for continued reliance on ICBM's is that we need to preserve the concept of a triad of strategic forces (ICBM's, bombers and submarines). I agree that we cannot rely entirely on one type of weapon lest some counter to it be developed. I agree, too, that we do not want to depend excessively on one form of basing lest it become especially vulnerable. But diversity in these areas should come from a careful mix of the least vulnerable systems that we can devise, not by retaining the existing mix no matter what common sense tells us. The proposed set of mobile systems would be a far healthier and more diversified mix. Diversity would come from the different forms of basing — land, sea and air; from the different kinds of attack — from atmospheric and from outer space; from the different techniques for concealment — submerged in water, mobile on land and sea and dispersed in large numbers over wide areas; and from widely separated approach corridors for attack so that defenses could not be concentrated easily.

One argument against greater reliance on mobile systems is that they, too, can be made vulnerable: Either the Russians could simply create a blast over sizable areas of the United States to destroy unhardened mobile systems; or American ships with mobile systems could be trailed. This is certainly true, as almost any weapons system can be made vulnerable at a cost. The point here, however, is relative vulnerability. The effort to counter a large number of mobile systems would be much more substantial, and hence less certain of success, than to offset the semifixed MX system.

Another argument for heavy reliance on ICBM's is that we need the capability to respond quickly to a Soviet nuclear-missile attack and to retain our readiness and ability to wage war. Nuclear-warfare theorists hypothesize that the Russians may attack a small number of our ICBM silos to test us and then suggest that we concede because trading blows further would only lead to mutual suicide. Is it reasonable that Moscow would take this incredible risk? Not very. It would be tempted to start down this very dangerous route only if it was convinced that the United States would cave in and not automatically launch a countering missile force at the first warning of the Soviet attack. However, the argument continues, if the Russians were this bold, the Americans would, in fact, have to be able to respond quickly with a carefully limited number of land-based ICBM's. This would enable the United States to prove that it has no intention of caving in, yet, at the same time, permit it to stop short of igniting nuclear holocaust. It is essentially this argument that has led to the extraordinary effort to perpetuate the land-based ICBM by creating a new model that is survivable — the MX.

But the premise is flawed. Timing is not so urgent that mobile ICBM's and even various cruise missiles would not do tolerably well for limited responses. SLBM's would do very well also. More important, no American President should take solace in his being able to respond to a limited attack by the Soviet Union with a limited counterattack of his own. If the Russians were bold enough to *(Continued on Page 44)*

start this frightening game, would they let their bluff be called by a response in kind? The decision of an American President to respond to a limited attack with a limited counterattack would be infinitely easier to make than to respond with an all-out attack. And it would not demonstrate enough resolve to persuade Moscow that we could not eventually be bluffed into capitulation. Instead, the Soviet Union would be likely to turn the nuclear ratchet another notch with still another round of limited attacks. Where would it end?

A problem with these theoretical arguments is their unreality. They attempt to translate the principles of conventional warfare into strategic nuclear warfare. This cannot be done. We should not treat strategic nuclear forces as though they were just another military force with which nations may fight. There is great danger in the emerging belief that we can calculate our need for strategic weapons in similar terms to artillery for an army — that is, that the side with more can endure longer and therefore is stronger. Traditionally, nations that estimated they were weaker for these kinds of reasons have been capable of being pressured into making political concessions to avoid war. The premise is sometimes invalid in conventional warfare; it is always invalid when applied to strategic nuclear forces. And operating on the basis of that premise could be fatal.

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Endurance may be a reasonable quality when it comes to artillery. After all, an artillery shell is lethal over only tens of yards. One can hardly imagine running out of targets. The lethality of nuclear weapons is measured in tens of miles. With the quantities of nuclear weapons both superpowers now possess, both sides could run out of meaningful targets rather quickly. There would be so much destruction that the result of war with such weapons cannot be measured. As long as we can destroy the other's civilization several times over, even after receiving a first strike, what meaning does further destruction have? Endurance is simply not a reasonable measure of strategic power. What need is there to attempt to gauge who will "win"? No one will win. In short, as long as we possess the excess quantities of assured retaliation capability that we do today, we need not concede one iota to the Soviet Union because of some theoretical calculation about which side would endure longer; nor need we bother with the calculation of how we would look after a total exchange.

A new strategic program that is a mix of cruise missiles, mobile ICBM's on land and sea, and STEALTH aircraft is, of course, not without its own risks. The primary one is the proliferation of weapons and launchers that would be needed to insure invulnerability. The facts of life, however, are that uncontrolled proliferation of cruise missiles and mobile ICBM's probably lies ahead in any event. This is a conclusion that became evident in our close examination of the verifiability of the SALT II treaty. Controls on the deployment of cruise missiles were placed in the protocol to the treaty. That was deliberate because the protocol expires at the end of this year. At the expiration of the protocol, cruise-missile development and deployment would be almost unregulated by SALT II even if the proposed treaty were enacted by the Senate. That is the way the United States wants it. The cruise missile is simply too important to us. Once the genie is out of the bottle and cruise-missile systems are fully developed, it will be very difficult to monitor their number and location. Imagine attempting to monitor whether the torpedo tubes of a submarine hold cruise missiles or torpedoes! What this means, then, is that future strategic arms-control agreements will not be able to limit the total number of weapons and warheads. There will still be good reason to control such items as ICBM's and submarines, whose numbers can be verified. But any hope of limiting total destructiveness is slipping past us.

With the proliferation of weapons goes another risk — especially if we attempt to place them on lots of ships, aircraft, simulated moving vans, etc. Each such weapon is necessarily under less stringent control, and is more susceptible to usage by some mad official or to theft by terrorists. These are risks inherent in all nuclear weaponry to some extent, but there are sophisticated technologies for preventing unauthorized firing or even tampering. In addition, an accidental firing would be less likely to stimulate an instantaneous and sizable response, because its retaliatory capability would be widely dispersed, neither side feeling that the consequences of an accidental attack would be fatal.

As a world, we are going to continue to live in what has been labeled "a delicate balance of terror" for the indefinite future. Our task should be to make that balance as indelicate as possible. The MX would move us in the direction of greater instability. But we now have the opportunity to move, instead, to a mix of systems that would create incentives for both sides to ease away from an arms race in first-strike, quick-response weaponry; one that would lessen the threat to the Soviet Union and would lessen its capability to strike at us first, since there would be few targets that could be attacked. In time, the Russians would have to move in a direction similar to ours. They could not risk having to sit with most of their strategic force in fixed ICBM's because theirs, like ours, will become increasingly vulnerable with time.

To insure this, we may well decide to improve the accuracy of our submarine-launched missiles so that they would have the capability of destroying hard targets. This would, of course, run counter to the general thrust I am suggesting that we eventually move away from systems

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capable of a surprise first strike against ICBM's. It would, however, be a pressure on the Soviet Union to move away from its reliance on ICBM's and to more mobile systems. Because submarine systems are viewed as the least vulnerable force, and hence are reserved for the unexpected, and because communications to submarines are less reliable than to other systems, they are less threatening than ICBM's. In sum, mutual moves toward mobile systems would visibly return the strategic balance to a state of more stable parity even though the threat of a first strike against ICBM'S would not be eliminated entirely.

There is little time left to reverse the momentum of the MX. A dramatic commitment by the new Administration will be needed to accomplish such a reversal, and the key word is "commitment." There are great vested and parochial interests in the military and in industry that are intent upon going ahead with the project. But the United States cannot let such interests dictate the course of its security, and, indeed, the security of the world. A new program is needed to correct the strategic imbalance — to the extent that it does exist — but, especially, to correct the perception that the United States itself has generated that it is falling behind. Thus, a prompt but thorough review of where the MX may be taking us, as well as what alternatives there are to the MX, is crucial to America's long-term security. ■